The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An aqueous, thiourea-free bath for electrolytically etching gold from a microelectronic workpiece, said bath comprising:

(a) iodide;

(b) sulfite; and

(c) a wetting agent.

2. An aqueous, thiourea-free bath for electrolytically etching gold from a microelectronic workpiece, said bath comprising:

(a) about 0.1-3.0 M of iodide;

(b) about 0.01-1.0 M of sulfite; and

(c) about 0.01-5.0 g/L of wetting agent.

3. The bath of Claim 2, wherein a source of iodide is selected from the group consisting of LiI, $LiI \cdot 3H_2O$, NaI, $NaI \cdot 2H_2O$, and KI.

4. The bath of Claim 2, wherein a source of iodide is KI.

5. The bath of Claim 2, wherein the concentration of iodide is about 0.5-1.5 M.

6. The bath of Claim 2, wherein a source of sulfite is selected from the group consisting of $Li_2SO_3 \cdot H_2O$, Na_2SO_3, $Na_2SO_3 \cdot 7H_2O$, and $K_2SO_3 \cdot 2H_2O$.

7. The bath of Claim 2, wherein a source of sulfite is Na_2SO_3.

8. The bath of Claim 2, wherein the concentration of sulfite is about 0.1-0.3 M.

9. The bath of Claim 2, wherein the wetting agent is a polyethylene glycol.

10. The bath of Claim 2, wherein the wetting agent is a polyethylene glycol having an average molecular weight ranging from about 2,000 to about 35,000.

11. The bath of Claim 9, wherein the concentration of the wetting agent is about 1.0-3.0 g/L.

12. The bath of Claim 2, wherein the pH of said bath is about 6.4-8.0.

13. An aqueous, thiourea-free bath for electrolytically etching gold from a microelectronic workpiece, said bath comprising:

(a) about 0.5-1.5 M of iodide wherein the source of iodide is selected from the group consisting of LiI, $LiI \cdot 3H_2O$, NaI, $NaI \cdot 2H_2O$, and KI;

(b) about 0.1-0.3 M of sulfite wherein the source of sulfite is selected from the group consisting of $Li_2SO_3 \cdot H_2O$, Na_2SO_3, $Na_2SO_3 \cdot 7H_2O$, and $K_2SO_3 \cdot 2H_2O$; and

(c) about 1.0-3.0 g/L of a polyethylene glycol.

14. An aqueous, thiourea-free bath for electrolytically etching gold from a microelectronic workpiece, said bath comprising:

(a) about 1.0 M of iodide, wherein the source of iodide is KI;

(b) about 0.2 M of sulfite, wherein the source of sulfite is Na_2SO_3;

(c) about 3.0 g/L polyethylene glycol having an average molecular weight ranging from about 2,000 to about 35,000.

15. A process for electrolytically etching gold from a microelectronic workpiece, said process comprising steps of:

(a) providing a thiourea-free etching bath;

(b) providing a microelectronic workpiece having thereon at least some amount of gold;

(c) contacting said gold with said etching bath; and

(d) providing electric current flow between said gold and a cathode disposed in electrical contact with said bath, whereby at least a portion of said gold is removed from said microelectronic workpiece.

16. A process for electrolytically etching gold from a microelectronic workpiece, said process comprising steps of:

(a) providing an aqueous thiourea-free etching bath comprising:

(1) about 0.5-1.5 M of iodide;

(2) about 0.1-0.3 M of sulfite; and

(3) about 1.0-3.0 g/L of wetting agent;

(b) providing a microelectronic workpiece having at least some amount of gold thereon;

(c) contacting the gold with the etching bath; and

(d) providing an electric current flow between the gold and a cathode disposed in electrical contact with the bath, whereby at least a portion of the gold is removed from the microelectronic workpiece.

17. The process of Claim 16, wherein a source of said iodide in said bath is selected from the group consisting of LiI, $LiI \cdot 3H_2O$, NaI, $NaI \cdot 2H_2O$, and KI.

18. The process of Claim 16, wherein a source of said iodide in said bath is KI.

19. The process of Claim 16, wherein the concentration of said iodide in said bath is about 0.9-1.1 M.

20. The process of Claim 16, wherein a source of said sulfite in said bath is selected from the group consisting of $Li_2SO_3 \cdot H_2O$, Na_2SO_3, $Na_2SO_3 \cdot 7H_2O$, and $K_2SO_3 \cdot 2H_2O$.

21. The process of Claim 16, wherein a source of said sulfite in said bath is Na_2SO_3.

22. The process of Claim 16, wherein the concentration of said sulfite in said bath is about 0.18-0.22 M.

23. The process of Claim 16, wherein the wetting agent in said bath is a polyethylene glycol.

24. The process of Claim 16, wherein the wetting agent in said bath is a polyethylene glycol having an average molecular weight ranging from about 2,000 to about 35,000.

25. The process of Claim 23, wherein the concentration of the wetting agent in said bath is about 2.7-3.3 g/L.

26. The process of Claim 16, wherein the pH of said bath is about 6.4-8.0.

27. A process for electrolytically etching gold from a microelectronic workpiece, said process comprising steps of:

(a) providing an thiourea-free etching bath having a temperature of about 20-30°C, said bath comprising:

(1) about 0.9-1.1 M of iodide, wherein the source of iodide is selected from the group consisting of LiI, $LiI \cdot 3H_2O$, NaI, $NaI \cdot 2H_2O$, and KI;

(2) about 0.18-0.22 M of sulfite, wherein the source of sulfite is selected from the group consisting of $Li_2SO_3 \cdot H_2O$, Na_2SO_3, $Na_2SO_3 \cdot 7H_2O$, and $K_2SO_3 \cdot 2H_2O$;

(3) about 2.7-3.3 g/L of a polyethylene glycol; and

(4) the balance is water;

(b) providing a microelectronic workpiece having at least some amount of gold thereon;

(c) contacting the gold with the etching bath;

(d) providing electric current flow between the gold and a cathode disposed in electrical contact with the bath; and

(e) removing at least a portion of the gold from said microelectronic workpiece.

28. The process of Claim 27, wherein the pH of said bath is about 6.4-8.0.

29. A tool for electrolytically etching gold from a microelectronic workpiece, said tool comprising one or more stations for carrying out the following functions:

(a) receiving a surface of a microelectronic workpiece having at least some amount of gold thereon;

(b) providing an aqueous thiourea-free gold etching bath for electrolytically etching gold;

(c) contacting the gold with the etching bath;

(d) providing electric current flow between the gold and a cathode disposed in electrical contact with the etching bath, whereby at least a portion of the gold is removed from said microelectronic workpiece; and

(e) rinsing residual chemistry from the microelectronic workpiece.

30. The tool of Claim 29, further comprising a supply of the aqueous thiourea-free gold etching bath.

31. An aqueous, thiourea-free bath for electrolytically etching gold from a microelectronic workpiece, said bath comprising:

(a) chloride; and

(b) a wetting agent.

32. The bath of Claim 31, wherein the chloride is present in an amount of about 1 to 6 M.

33. The bath of Claim 32, wherein a source of the chloride is hydrochloric acid.

34. The bath of Claim 31, wherein the wetting agent is polyethylene glycol.